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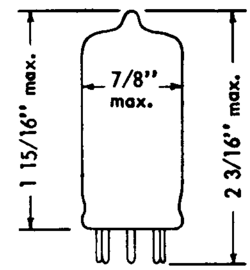
TECHNICAL INFORMATION

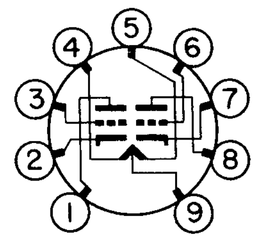
Excellence in Electronics

DOUBLE TRIODE

TYPE CK5755

The CK5755 is a heater – cathode type double – triode of miniature construction. This type has several unique features of construction and test specification controls which make it suitable for applications, such as precision DC amplifiers, computers, and regulated power supplies which require very stable characteristics. Among the features are special cathode springs which reduce microphonic response. This characteristic is controlled by a "microphonic stability" test for balance in which the tube is tapped at shock levels of 400 to 600 G. Other tests which serve to control the characteristics are: 150 hour stabilization, drift, electrical stability, plate current balance, and a maximum grid current limit of 10^{-9} Adc. These tests are described under Typical Operating Conditions and Characteristics.





BOTTOM VIEW

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MECHANICAL DATA

ENVELOPE: T – 6½ Glass

BASE: Miniature Button 9 – Pin

TERMINAL CONNECTIONS:

Pin 1 Plate, Unit 2	Pin 6 Grid, Unit
Pin 2 Cathode, Unit 2	Pin 7 Cathode, Unit 1
Pin 3 Grid, Unit 2	Pin 8 Plate, Unit 1
Pin 4 Heater	Pin 9 Heater Center – Tap
Pin 5 Heater	

MOUNTING POSITION: Any

ELECTRICAL DATA

DIRECT INTERELECTRODE CAPACITANCES: (μμfds.)

	With Shield *	Without Shield
Grid, Unit 1 to Plate, Unit 1: (1g to 1p)	1.40	1.40
Grid, Unit 2 to Plate, Unit 2: (2g to 2p)	1.40	1.40
Input: 1g to (h+1k)	1.80	1.55
Input: 2g to (h+2k)	1.70	1.55
Output: 1p to (h+1k)	1.50	0.78
Output: 2p to (h+2k)	1.20	0.60
Plate, Unit 1 to Plate, Unit 2: (1p to 2p)	0.85	0.90
Grid, Unit 1 to Plate, Unit 2: (1g to 2p)	0.011	0.014
Grid, Unit 2 to Plate, Unit 1: (2g to 1p)	0.011	0.014

RATINGS – ABSOLUTE MAXIMUM VALUES: (Note 1) ▲

Heater Voltage	6.3 / 12.6 ± 10%	volts
Plate Voltage (each unit)	250	volts
Plate Dissipation (each unit)	1.0	watt
Heater – Cathode Voltage (each unit)	75	volts

TYPICAL CHARACTERISTICS: ▲

Heater Supply Voltage (parallel connected)	6.3	6.3	volts
Heater Current (parallel connected)	0.360	0.360	amp.
Plate Voltage	180	110	volts
Grid Voltage	0	–0.95	volts
Plate Current	2.2	0.15	ma.
Transconductance	1500	500	μmhos
Amplification Factor		70	
Plate Resistance		0.14	meg.
Grid Current		10^{-9}	amp.
Initial Balance (Note 6) 1Δ (E1C – E2C)		± 0.3	volts

TYPICAL OPERATING CONDITIONS – DC AMPLIFIER:

Heater Supply Voltage (parallel connected)	12.6	volts
Heater Ballast Resistor (each lead)	35	ohms
Plate Supply Voltage	310	volts
Cathode Bias Resistor (cathodes tied together)	0.15	meg.
Load Resistance (each unit)	0.9	meg.
Stabilization (Note 2)	150	hours
Drift (16 hours) (Note 3)	Ave. ΔEc = 5	mVdc max.
Electrical Stability (Note 4)	ΔEc = 2	mVdc max.
Mechanical Stability (Note 5)	Ave. ΔEc = 25	mVdc max.

Tentative Data

Printed in U.S.A.

RAYTHEON MANUFACTURING COMPANY

RECEIVING AND CATHODE RAY TUBE OPERATIONS

RAYTHEON

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* *External Shield #315 connected to cathode of unit under test.*

▲ *Values are for each unit unless otherwise specified.*

NOTES:

Note 1: Limitations beyond which normal tube performance and tube life may be impaired. Quality level assured by sampling tests (Design Tests) on each production lot.

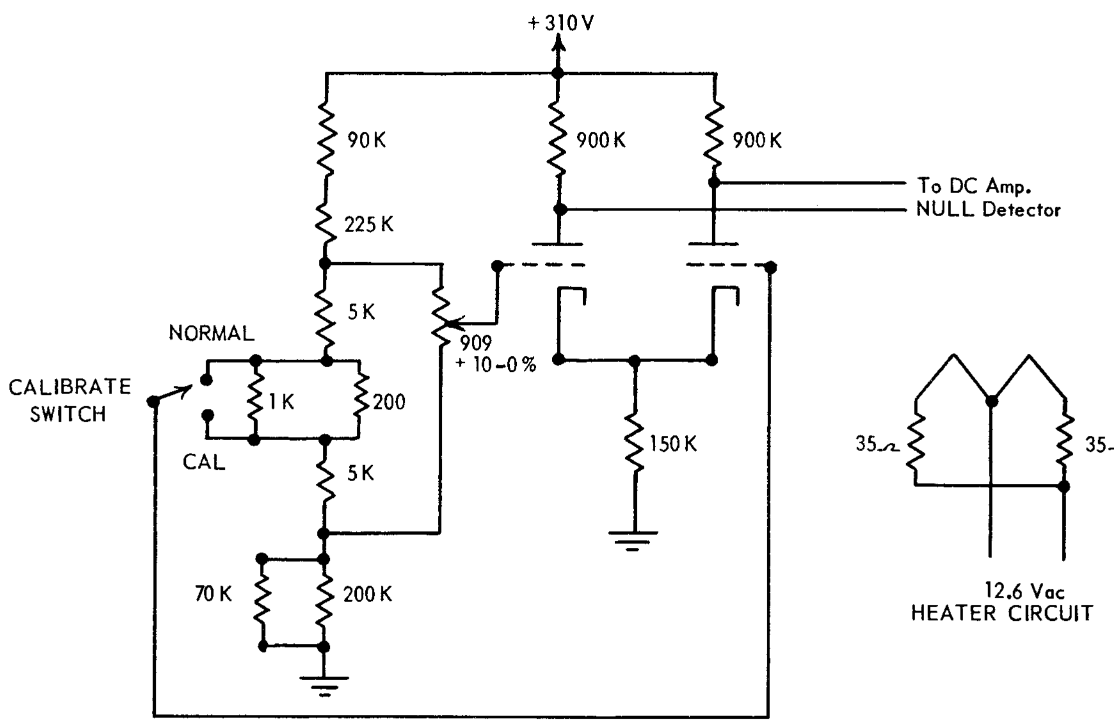
Note 2: All tubes are operated at least 150 hours in a typical operating circuit before testing.

Note 3: At the start of the test, an initial adjustment of grid bias shall be made to balance the plate currents in the two units within 1 μAdc. Drift, ΔEc is defined as a steady state change in grid bias that is required to return to the initial plate current conditions after operation for a specified period of time. No adjustment is allowed between observations. The test is made on at least a 15% sampling basis in the test circuit shown as Figure 1. The test period is a minimum of 16 hours; observations may be made at the start and finish of the final 7 hours period. The limit for ΔEc is 5 millivolts, DC, and applies to the arithmetic average of the sample disregarding the direction of change.

Note 4: Upon completion of the drift test ΔEc is observed for an operating period of 5 minutes with the tube in the same circuit. A ΔEc of 2 millivolts is permitted. The limit applies to individual tubes and any failure in the samples shall be cause for rejection of the lot.

Note 5: Upon completion of the electrical stability test each tube in the sample is tapped once in each of six directions with a shock between 400 and 600 G's of approximately one millisecond duration. ΔEc when measured in the circuit shown, shall be interpreted as the maximum variation from the initial setting that takes place following each of the six shocks. The 25 millivolt limit applies to the arithmetic average of the sample, disregarding the direction of the change.

Note 6: With E 1b = E 2b = 110 Vdc and with I1b = I2b = 0.150 mAdc, E1c – E2c for required Ib must not exceed ± 0.3 Vdc.



Max. Tolerance on Resistances to be 1%.

FIGURE 1

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DOUBLE TRIODE

